

### Abstract

Described is a method that identifies a predicate expression representing conditions in predicated assembly language instructions that determine a direction of a conditional branch instruction. The predicate expression is employed to enable a transformation to be made that causes the conditional branch instruction to trigger, or execute, when an opposite condition is true. A method is directed to producing a binary-level conditional branch reversal within a binary program on a computer architecture that supports a predicated execution. The method includes obtaining a predicate expression representing a condition that influences a direction of program flow of the binary-level conditional branch to be reversed, determining a binary-level transformation that causes the binary-level conditional branch to be triggered when an opposite condition is true, and modifying the binary-level conditional branch with the determined binary-level transformation, wherein the binary-level conditional branch is reversed.

